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ABSTRACT

Three areas of the classical rhetoric of Aristotle, adapted for the modern discourse of inquiry and demonstration, provide a systematic framework for students to understand thought, investigation, and writing in other disciplines: aitia, kairos, and the enthymeme and the example. Aitia, or cause, has four aspects--the material cause, the formal cause, the efficient cause, and the final cause--all of which are components of the thought processes involved in composing. The enthymeme, the substance and body of reasoning, has an underlying causal relationship whereby the theory explains method and fact selection, which together explain the conclusion. Causal reasoning, whether inductive or deductive, is a basic thinking process used in or with other mental operations in what is being called critical thinking. Kairos, the "right time" or "appropriateness," involves grasping the pivotal issue on which a problem or case depends and knowing which techniques or thinking processes to apply to its solution. Since freedom of thought must have a structure within which to operate, students' knowledge of these canons of thought processes will enable them to understand thought, investigation, and writing in other disciplines. (JK)

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AITIA and KAIROS: Classical Rhetoric in the Writing Across the Curriculum Program

Rosemary L. Gates

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AITIA and KAIROS: Classical Rhetoric
in the Writing Across the Curriculum Program

This afternoon, I will consider three areas of classical rhetoric that have important implications for understanding and teaching thinking and writing across the curriculum: aitia, or cause, because of its importance in reasoning and its place as the battleground between science and the humanities; kairos, as the appropriate use of thought and knowledge in specific situations; and the enthymeme and the example, as thinking processes and proofs grounded in a community.

In the classical age aitia was the foundation of scientific thinking.[1] Aitia was the cornerstone of scientific inquiry for Aristotle, for only through a knowledge of causes could scientific knowledge--the knowledge of what makes things as they are--be obtained. Aristotle saw cause as inhering in four aspects: the material, the formal, the efficient, and the final.[2] The idea that the material of which a thing is made, or that its forms, functions, and ends are causes may seem at first glance antithetical to our modern idea of cause. But aitia was understood as an explanatory factor; today we tend to regard only efficient causes--instruments and agencies, especially antecedent agencies--as causal. Yet, the ancient view of scientific cause is still present in scientific investigation: science attempts to describe what things are made of (material cause) and what forms things have (formal cause); sometimes science uses

efficient cause, in the case of catalysts for example. In the humanities, we might inquire more fully about efficient causes, and we often ask questions that include a consideration of final causes. This way of thinking about causality is also close to the natural thinking process both we and our students use in ordinary circumstances.

Let me illustrate. A familiar model of decision-making in the composing process rests on the classical fourply structure of cause: Matter (words, ideas) being generated causes what a text is, as does the form whether imposed or left to unfold. The efficient causes--author as agent and his pen, typewriter, or word processor--are explanatory factors of the text. The writer's notion of his purpose--what he wants to do in the discourse--is a final cause. This characterization of the composing process is familiar to us, and I use it not to show anything new about composing but to demonstrate that we think along the same lines of reasoning as the ancients did. The classical concept included this inseparability of causal structure: the fourply structure had to be taken of a piece to determine the full range of causes of a thing.

The fourply structure of cause thus yields definition, just as it yields our definition of decision-making in the composing process. Though the parts of the definition may today proceed from empirical and analytic methods, the complex, interlocking structure of defining being--what something is--remains the same as in Aristotle's day. Definition remains the starting point for inquiry and writing; it indicates the direction in which inquiry

and argument or exposition may proceed, a sort of pivot since the thesis statement, in the processes of thinking and writing, includes a categorical proposition--a statement of definition--in either its surface or deep structure.

It was the causal basis of thought--of linking idea to idea in chains of causal relationships--that allowed scientists to proceed with investigating a subject systematically instead of haphazardly and uncertainly. This structure of thought has not changed since ancient times. Rather, what has changed is the location of the grounds for investigation. Descartes' promotion of the cogito over the doctrine of being as the foundation of scientific thought changed the basis of a priori principles from which deductive reasoning begins; and Hume's rejection of cause based on association, which elevated empirical and analytic methods over deduction, altered the preferred method of acquiring evidence for the support of hypotheses[3]. But the structure of thought remains the same today as it was in the classical age.

The territory of science today is definition (which in a broad sense includes description) of the natural world, the spatial-temporal domain of what is measurable, and thus can be proven or disproven on the basis of measurement. In terms of classical aitia, scientists since the seventeenth century have limited their domain to material and formal cause--though scientific statements more frequently assert definition and description than causality as we think of it today. Scientists in the classical age and continuing to the seventeenth century also took as their area of investigation what could be known for

certain, but the causal basis of facts was a central part of their investigations since their method of demonstration was basically a posteriori, arguing from effects in a given experience to the true causes, the verae causae, they saw as necessarily entailed. Because the methods for discovering and demonstrating truth have changed, scientific investigations today often fall within the realm laid out in ancient times for rhetoric: common assumptions of the group--in this case adherence to the proper procedures of hypothesizing and measuring--form part of the syllogistic pattern of proof. While the investigation may still take the form of problem and demonstration identified by Aristotle as the pattern for arriving at scientific truth, the writing of scientific research must include persuasive tactics that place it in a certain theoretical, procedural school. Thus the writing of scientific research often has the structure Aristotle identified for rhetoric: statement and argument , at least as an outer frame for the problem and demonstration.[4]

Scientific thought and discourse share with rhetoric enthememic and paradigmatic structures and processes. These two forms were for Aristotle the structures for the proofs of rhetorical discourse and represented the thought processes of deduction and induction.

The enthymeme, which was for Aristotle the "substance and body of persuasion"[5], is the substance and body of reasoning whenever theory stands as the major premise to which facts (in the minor premise) are related for interpretations,

conclusions, or new knowledge. This relationship forms the structure of inquiry for all disciplines. It is theory guiding method, dictating definitions, relevant evidence, and proper procedure that results in conclusions, which are often new knowledge of the provisional, contingent kind, because the theories are, like enthymemes, rooted in the common assumptions of the group, and are true within the limits of the group's definition of terms.

Theory provides the general truth or assumption as the major premise; the fact provides the minor premise matched to the theory by a common element which is the middle term; and the concluding premise is the solution or new knowledge. Only in mathematical proofs may the problem of contingencies enforced by language be avoided. For Aristotle, the power of the enthymeme in persuasion resided in its ability to incorporate the opinions of the group in the reasoned argument without expressing them directly. Scientific writing today uses the enthymeme to indicate the place of the discourse in the scientific community and to argue, however subtly, for the acceptance of its premises.[6]

The enthymeme has an underlying causal relationship: the theory is explanatory of (i.e., "causes", in the Aristotelian system) the method and selection of facts which together are explanatory of (i.e., "cause") the conclusion. In a similar manner, underlying values and beliefs may originally cause the theory. (Theories are thus <u>exemplary causes</u>, a type of "end" or "final" cause providing explanatory connections among the data to

be proven or disproven.) Causal reasoning selects the definitions useful in a specific case and postulates reasons why propositions follow each other. Within the discourse situation, the structure of the enthymemes and examples are the surface features of the explicit and underlying causal relationships.[7]

Causal reasoning operates in the two natural forms of reasoning toward knowledge--induction and deduction. Aristotle asserted that the example and the enthymeme were the discourse forms of these two reasoning structures. The nature of enthymemes as causal reasoning forms is evident because they are syllogisms. In deductive reasoning the search for the middle term is the process of discovering a causal link that will bind the other two terms. The concluding premise is a statement discovered in the causal relationship. Aristotle's discussion on forming enthymemes from maxims makes this point clear: to the maxim, the rhetor was to discover and add or suggest the cause or reason behind it to form an enthymeme [Rhetoric, 2.21]. Similarly his discussion of the topoi considers the discovery of facts and opinions to be used as causal links in the chain of enthymemes.

It may not be as obvious how the example, or paradeigma, involves causal reasoning.[8] Philosopher William Wallace explains that for Aristotle the example had an inductive character just as the enthymeme had a deductive one. As with the classical idea of cause, the classical understanding of induction differed from that adopted by modern science from the Humean tradition. True generalizations from inductive procedures are

regarded today as impossible unless every case can be tested. Aristotle however thought that true generalizations were possible because the human mind could see the general within the particular. The process of reasoning is from effect to cause--seeing the general causes latent in specific effects.[9] Though science rejects certainty of cause it nevertheless uses induction, working with a certain probability level. Students who have been schooled in memorizing facts often do not realize that much scientific knowledge is regarded as probable. Nor do they realize that the inductive reasoning they do every day--their generalizations arising from their specific experiences--is the basis for the generalizations used in the deductive reasoning they also do. This connection was obvious to Aristotle: it formed the ground of common reasoning processes and the common opinions that were the subjects of rhetorical speeches and that comprised these generalizations. The modern distrust of subjectivity has left students without a knowledge of the complexity of cause, and without a knowledge of how to ground their own opinions, to test them against other opinions they hold and against those held by a community. Consequently they do not have the resources for effective persuasive support of their positions.

As with enthymemes, the tactics of selecting an appropriate example are also set by the context, whether a rhetorical situation or a scientific problem. The example must be representative and useful. As a heuristic, the example involves similarities of parts in two otherwise dissimilar objects. But

in persuasive argument, the example is selected in order to suggest that because of the similarity, what is true in the one case may be true in the other case. The kind of reasoning involved in noticing the similarities is analogical, but the use of the analogy in topical invention--and often in scientific discovery and technological invention--is causal reasoning that suggests answers to a problem.

As James Raymond has pointed out, for Aristotle the example was paradeigma, a paradigm or pattern. As a proof it convinced by comparing an unfamilar pattern with a familiar one, and included ethical, pathetical and logical components in its content. Selection of the example involved appropriateness to the purpose of the speaker with respect to shared knowledge and values of the community of hearers.[10]

Modern composition textbooks treat the example in a quite narrow sense of a representative instance, seriously distorting Aristotle's conception of its nature, value and use. The example is discussed as a kind of support or demonstration, but its power in thinking and persuasion has been neglected despite its recognized importance in general intelligence and creative thought. Analogical thinking is used as measure of intelligence on IQ tests; the Miller Analogy Test, used widely for graduate placement, requires analogical thinking in all of its 100 questions. Douglas Hofstadter has asserted that the basic operation of the mind is the pattern matching of analogical process, a view that undoubtedly arises from work with artificial intelligence. Certainly analogy plays a crucial role in creative

scientific thought. The examples of Descartes' discovery of coordinate geometry, of Einstein's theory of relativity, of Watson and Crick's double helix are a few of the well known cases of how advances in science were made through analogical thought. Edison's journals, recently made public, reveal that he worked by analogy, patterning his moving film machine on the phonograph and the light bulb on the telegraph.

The suggestive power of analogies is what makes them useful in inquiry and persuasion. Scientists may use analogies in creative thought, looking for patterns of identity or similarity and seeking causal reasons for the existence of the pattern. Scientific thinking is also synthetic: rarely today, since the decline of logical positivism, does science seek pure description, but rather explanatory relations among phenomena. However, the causal links of the analogies themselves do not become part of scientific proofs. Understanding that the scientist's aim is to define and describe--to answer "why" in terms of "what" and "how" using the methods proper to the discipline--is essential for students if they are to understand the difference of purpose and method between science and humanities. Such awareness is also necessary for students to place science within its proper limits: science may examine material and formal cause where measurement is possible; the humanities may examine efficient and final causes, and examining material and formal causes may provide quite contingent results because of difficulties with accurate measurement and interpretation of results.

Causal reasoning as understood in Aristotelian rhetoric is a basic thinking process involved in induction and deduction and used in or with all other mental operations what is being called critical thinking. Causal reasoning allows meaningful relationships to be drawn. In a complex sequence of operations such as is required for prediction and evaluation, causal reasoning toward definition must occur early in the series of operations. In complex problem solving, causal reasoning occurs at various stages of defining, describing, and analogizing; it also forms the causal links among the separate operations that allow a solution to be produced. This matrix of processes suggests that we need to pay much more attention to teaching causal reasoning. It also means that we should begin with causal reasoning and lead students progressively to an understanding of their own reasoning processes, beginning with the classical notions of cause, moving to definition, to cause-effect and effect-to-cause reasoning, then to predicting and evaluation. By the time students have traversed this territory, they should have a flexible framework for the systematic operations needed for complex problem solving, whether in their own disciplines, in ethical matters, or in reading and writing complex pieces of discourse. The framework relies on students' natural thinking processes; but it makes them conscious of what the processes are and the ways they are used so that their thinking is more systematic.

Far from our typical modern view that classical rhetoric provided a rigid, static approach to discourse, it was an

intricate system of ultimately inseparable parts based in the context of the community and in specific situational contexts. Grasping the system required extensive practice and extensive knowledge of human emotion and social values. The classical concept that undergirded the system was kairos, which translates as "right time", and conveyed the idea of timing and fitness--when to bring which abstract ideas into use in a particular situation. James Kinneavy, who is responsible for bringing the crucial place of kairos to our attention, points out that kairos was the "cornerstone" of Plato's rhetoric: right timing was what made rhetoric an art rather than a collection of technical skills.[11] As the pivot on which good rhetoric moved, kairos bore the theoretical--the intellectual dialectical search for truth--into a specific temporal point in the practical world. For Plato, the theoretical had to be mastered in order to give birth to the practical reasoning involved in rhetoric. For freedom of inquiry to exist, a knowledge of past and present was demanded, of the eternal, ideal realm as well as of the human, temporal world.

Bringing theory into practice in any field, when applying a theory in a specific problem, is a matter of right timing. The systematic learning of methods of inquiry and basic thinking processes only becomes useful when the learner has grasped how and when to apply them. In Aristotle, kairos is present as "appropriateness", the test for use of a particular fact, argument, arrangement, or point of style. This fluid nature of "rightness in a particular case or instant" was later lost in the

concept of "correctness".

Kairos involves grasping the pivotal issue on which a problem or case depends and knowing which of the learned techniques or innate thinking processes to apply to its solution. For the ancients, it was an intuitive movement of mind made possible by thorough (either formal or informal) study and practice. This intuitve movement of mind, which results in insight, was the basis of Cicero's rhetorical system, a fact which is often overlooked.[12] Finding the pivotal issue in a case is still the starting point of legal argument today, as it is in the practical affairs of government, business, and industry.[13] It is also the most important element in scientific thinking, for it marks the intuitive grasp of important patterns and syntheses that form the hypotheses to be tested. Need I mention how important it is to writing research papers in English composition or literature?

Freedom of thought, like all freedoms, must have a structure within which to operate. Insight comes about from a knowledge of what is made possible by or within the structure. Sometimes it borrows knowledge (including structures) from other domains than the immediate one; that is one reason a liberal arts background is useful in specialized fields. Aristotle considered all knowledge to be relevant to rhetorical art since it might become useful or necessary at some time or another. Insight is the sudden, kairotic entrance of the abstract realm of knowledge into a particular situation. Personal insight in public discourse moves beyond a personal context to a situational context of questioning

and answering involving a community. It must know the conventions of the community well enough to be able to step outside of them. Insight , as an art, cannot be directly taught, but it can be promoted by teaching the structure of thought and the content of the community's dialogue. Plato's objection to writing--that it was disconnected from the family of discourse, an orphan without a father to protect it--need no longer be feared, if we see openly that a piece of writing, no matter what kind it is, is only one moment in the ongoing dialectical dialogue that seeks to know truth.[14]

While incorporating aitia and kairos into the writing curriculum cannot assure that all students will be able to apply theory, at least they will be aware of what the enterprise is about.

From classical rhetoric, adapted for the modern discourse of inquiry and demonstration, we can derive a systematic framework for students to understand thought, investigation, and writing in other disciplines. One aim of writing across the curriculum programs, as I understand them, is to help students "fill in" the framework with the canons of specific disciplines, to learn its questions and answers, by having them write in order to learn the canons as well as the facts. In research on the topoi, Frank D'Angelo describes the history of the development of thought as a drawing together of knowledge about thought processes into increasing levels of abstraction. What Aristotle did for the ancient world was to abstract from thousands of commonplaces--the aids for thinking and memory in the ancient preliterate world--

some basic lines of reasoning.[15] Aristotle's distinction between these common topics and the topics specific to certain fields was a recognition that some lines of reasoning were not general reasoning processes but rather were restricted to certain kinds of investigation and their characteristic materials and subject matters. Aristotle's work exposed and organized, and in some cases laid down, the canons of reasoning in many fields of study. What I am advocating is that students learn what these thought processes are, and that they learn how, through writing, they apply in practice to the structures of inquiry, value, and belief canonized in various modern intellectual, social, and political communities. Then, I believe, we will be empowered to move writing to the center of education, where the study of discourse once stood and where it still belongs.

Notes

[1] A detailed history of the concept of aitia in as it has functioned in scientific explanation from antiquity to the present is to be found in William A. Wallace, Causality and Scientific Explanation, 2 vols., Vol. 1. Medieval and Early Classical Science; Vol. 2. Classical and Contemporary Science (Ann Arbor: U of Michigan Press, 1972-1974; rpt. Lanham, MD: University Press of America, 1981.

[2] Aristotle's treatment of aitia occurs in the Posterior Analytics and the Physics. Though they were explained for use in scientific and dialectical reasoning, Aristotle regarded rhetoric as the "counterpart of dialectic", and includes cause and effect, as well as definition, among the common topoi in the Rhetoric. For a fuller explanation of Aristotle's fourply structure of cause, see Wallace, Vol. 1, 13-17; and for its application to teaching composition, see Wallace's "Aitia: Causal Reasoning in Composition and Rhetoric" in Moss, Rhetoric and Praxis.

[3] See Grassi, Rhetoric as Philosophy, 68-71. Grassi's study provides an excellent view of the way rhetoric creates social structures and knowledge. See Wallace, Vol. 2, 38-51 for a discussion of Hume, and 217-237 for a discussion of anti-Humean directions in the twentieth century.

[4] I do not mean by this that scientific method takes the form of statement and argument, but that the writing of papers reporting scientific research share more with Aristotle's definition of rhetorical form than with his definition of

scientific demonstration, which at that time was accomplished through syllogisms. In the Rhetoric (3.13), Aristotle spoke against the set arrangement of parts, claiming that the parts of rhetorical discourse were composed of two parts--statement and argument--corresponding to the processes of problem and demonstration in dialectic.

[5] Aristotle, The Rhetoric, 1.1. See also Larry Arnhart's discussions of the enthymeme in Aristotle on Political Reasoning (DeKalb: Northern Illinois UP, 1981), 8-10 and 39-47. His discussion (p. 47) of the example as a source for enthymemes explains how the enthymeme was viewed by Aristotle as the "substance and body of persuasion", with the example subordinate to the enthymeme and different from induction only in that it selected one or more but not all the particulars for comparing similarity. Reasoning involving the example is syllogistic because of the implied generalizations that are used.

For a history of the enthymeme and its use in modern composition, see Maxine Hairston, "Bringing Aristotle's Enthymeme into the Composition Classroom," in Moss, forthcoming.

[6] As explained below, in the Rhetoric Aristotle emphasized the particular value of the example and the enthymeme as satisfying the needs of inductive and deductive reasoning in persuasive discourse, pointing out that the example takes the place of induction and the enthymeme that of the syllogism. This does not mean that he dispensed entirely with the enthymeme in his own scientific usage. Wallace has noted that one can read through most of Aristotle's works now classified as contributions

to science without finding a single argument cast in syllogistic form. Usually one premise is suppressed in his exposition, even though the reason or cause is given. According to the canons of logical reasoning, this makes such arguments not syllogisms but enthymemes. Nonetheless, because of the special use of enthymemes in rhetorical discourse, in what follows, I use the terms enthymeme and enthymematic in the rhetorical sense and not in the sense of an abbreviated syllogistic argument.

[7] If Heidegger was right, and all knowledge is a matter of interpretation, then the facts themselves are also the results of enthymematic formulations. This is where modern composition theories such as that proposed by Ann Berthoff extends Aristotle's discourse on practical reasoning in The Rhetoric to all reasoning. Our preconceptions about the world cause us to differentiate and understand the world in certain ways, thus producing our knowledge.

[8] For a discussion of Aristotle's belief that true generalizations could occur through induction, see Wallace, Vol. 1, 11-18.

[9] Kuhn (See note 2) brought the term "paradigm" to attention by identifying ways in which paradigms function among the community of scientists to confer a uniform (and socially imposed) way of posing and solving problems in various areas of scientific investigation.

[10] Rhetoric of Aristotle, 2.20. See also Nan Johnson, "Ethos and the Aims of Rhetoric," in Connors, Ede, and Lunsford, 102, 103; and Raymond's commentary on the passage in Rhetoric, in

Connors, Ede, and Lunsford, 146 and 147.

Larry Arnhart places Aristotle's notion of metaphor close to recent twentieth century views that all lanuguage and thought is inherently metaphorical. The search for the middle term requires insight into resemblance, the key means of knowing the world for Aristotle (172-76).

[11] Kinneavy cites the passage from the Phaedrus and discusses kairos in "Translating Theory into Practice" in Connors, Lunsford, and Ede, 71-77. For a more lengthy treatment, see Kinneavy's essay, "Kairos" A Neglected Concept in Classical Rhetoric," in Moss.

[12] See Grassi's excellent analysis of Cicero, pages 8-10. Grassi asserts that Cicero has been much understood; that the image of him as a "dilettantish popular thinker who repeated the ideas of Greek philosophers proves untenable. . . ." Cicero's rhetoric was dialogic and situational, and his views on correctness must be viewed against this background. See also Michael Grant's introduction to Cicero: On the Good Life, trans. Michael Grant (Baltimore: Penguin, 1971), especially p. 22, where Grant emphasizes the essence of Cicero's practical reasoning in his ability to see an issue from several points of view, and to draw from various resources to suit the method to the situation and task at hand.

[13] Numerous discussions I have had with business and industry professionals looking at the problem of writing in the workplace repeatedly brought the issue of insight to the foreground. The word is always connected to needs of a

situational context, of bringing knowledge to bear on immediate situations. For a discussion of insight in legal reasoning see, Brand and White, Legal Writing (New York: St. Martin's Press, 1981), 131. Brand and White use the term "informed intuition."

The process of legal reasoning is an artful dance between analogical and deductive thinking; kairos describes well what must happens in the constant movement back and forth between the two processes.

[14] Plato's argument on this point is in the Phaedrus, trans. W.C. Helmbold and W.G. Rabinowitz (Indianapolis and New York: Bobbs-Merrill, 1956), 69-72.

[15] See D'Angelo's discussion in "The Evolution of the Analytic Topoi: A Speculative Inquiry," in Connors, Ede, and Lunsford, 50-68.

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